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METHOD OF MAKING POLYMER-CONCRETE ARTICLES,(U)
JUL 77 S S DAVYDOV, A D MASLAKOV

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METHOD OF MAKING POLYMER-CONCRETE ARTICLES

by

S. S. Davydov, A. D. Maslakov
et al.

EDITED TRANSLATION

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By: S. S. Davydov, A. D. Maslakov, et al.

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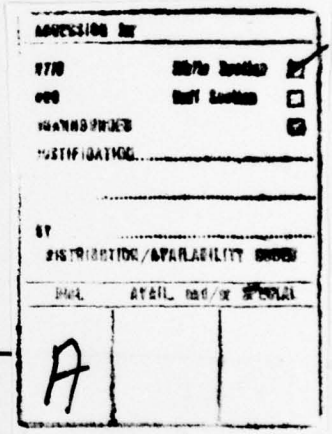

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Block	Italic	Transliteration	Block	Italic	Transliteration
А а	*А а*	A, a	Р р	*Р р*	R, r
Б б	*Б б*	B, b	С с	*С с*	S, s
В в	*В в*	V, v	Т т	*Т т*	T, t
Г г	*Г г*	G, g	У у	*У у*	U, u
Д д	*Д д*	D, d	Ф ф	*Ф ф*	F, f
Е е	*Е е*	Ye, ye; E, e*	Х х	*Х х*	Kh, kh
Ж ж	*Ж ж*	Zh, zh	Ц ц	*Ц ц*	Ts, ts
З з	*З з*	Z, z	Ч ч	*Ч ч*	Ch, ch
И и	*И и*	I, i	Ш ш	*Ш ш*	Sh, sh
Й й	*Й й*	Y, y	Щ щ	*Щ щ*	Shch, shch
К к	*К к*	K, k	Ъ ъ	*Ъ ъ*	"
Л л	*Л л*	L, l	Ы ы	*Ы ы*	Y, y
М м	*М м*	M, m	Ь ь	*Ь ь*	'
Н н	*Н н*	N, n	Э э	*Э э*	E, e
О о	*О о*	O, o	Ю ю	*Ю ю*	Yu, yu
П п	*П п*	P, p	Я я	*Я я*	Ya, ya

*ye initially, after vowels, and after ъ, ь; e elsewhere. When written as ë in Russian, transliterate as yë or ë. The use of diacritical marks is preferred, but such marks may be omitted when expediency dictates.

GREEK ALPHABET

Alpha	A	α	*α*	Nu	N	ν	
Beta	B	β		Xi	Ξ	ξ	
Gamma	Γ	γ		Omicron	O	o	
Delta	Δ	δ		Pi	Π	π	
Epsilon	E	ε	*ε*	Rho	P	ρ	*ϱ*
Zeta	Z	ζ		Sigma	Σ	σ	*ς*
Eta	H	η		Tau	T	τ	
Theta	Θ	θ	*ϑ*	Upsilon	T	υ	
Iota	I	ι		Phi	Φ	φ	*ϕ*
Kappa	K	*κ*	κ	*ϰ*	Chi	X	χ	
Lambda	Λ	λ		Psi	Ψ	ψ	
Mu	M	μ		Omega	Ω	ω	

RUSSIAN AND ENGLISH TRIGONOMETRIC FUNCTIONS

Russian	English
sin	sin
cos	cos
tg	tan
ctg	cot
sec	sec
cosec	csc
sh	sinh
ch	cosh
th	tanh
cth	coth
sch	sech
csch	csch
arc sin	$\sin^{-1}$
arc cos	$\cos^{-1}$
arc tg	$\tan^{-1}$
arc ctg	$\cot^{-1}$
arc sec	$\sec^{-1}$
arc cosec	$\csc^{-1}$
arc sh	$\sinh^{-1}$
arc ch	$\cosh^{-1}$
arc th	$\tanh^{-1}$
arc cth	$\coth^{-1}$
arc sch	sech^{-1}
arc csch	csch^{-1}
rot	curl
lg	log

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All figures, graphics, tables, equations, etc. merged into this translation were extracted from the best quality copy available.

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METHOD OF MAKING POLYMER-CONCRETE ARTICLES

S. S. Davydov, A. D. Maslakov, V. I. Solomatov, L. S. Yesyutin, I. D. Maslakov, and A. Ye. Shlykov

This invention is a method of making polymer-concrete articles.

We have a method of making polymer-concrete articles by preparing the raw mixture, molding and heat treatment.

The polymer-concrete hardening reaction is exothermic; therefore, the mixture cools off in the hardening process. Here the outer layers release heat into the environment and have a lower temperature than the core of the article. The surface layers do not

harden completely, which causes the material in the surface layers to be weak. This has a detrimental effect on the overall strength and longevity of the article. It generally takes 30 days or longer for an article to harden at normal temperatures and requires large production areas.

The articles are heated in a heat chamber at 80° for 10-12 hours. Considerable temperature differentials originate inside the article during the convective heat exchange with the environment, causing the manifestation of considerable internal stress, which leads to crack formation.

The purpose of this invention is to speed up hardening and reduce the internal stress in the polymer-concrete.

This is achieved by conducting the heat treatment process in an electromagnetic field at a frequency of 2500-30,000 mHz and voltage of 0.1-0.025 kV/cm for 5-10 min.

Increasing the frequency intensifies the effect of the electromagnetic field and accelerates the hardening process. A lower electromagnetic field strength is required to achieve the same effect at a higher frequency.

Under the action of the electromagnetic field, uniform cooling of the polymer-concrete mass occurs over its entire depth and it hardens in 5-10 minutes, thus eliminating the origination of nonuniform temperature fields and the internal stress connected with them.

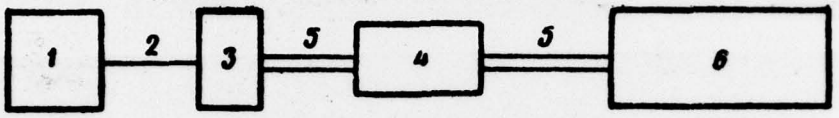
The figure shows a block-diagram of this method.

The electric power is fed from power unit 1 over wire connections 2 to SHF generator 3. Here it is transformed and fed through linkage 4 via waveguide connections 5 into working chamber 6, which contains the articles being treated.

This method can be used to make shafts, cross ties, pipes, columns, and other structural components out of polymer-concrete.

Subject of Invention

This invention is a method of making polymer-concrete articles by preparing the raw mixture, molding and heat treatment. It differs in that in order to speed up hardening and reduce the internal stress in the polymer-concrete, the heat treatment process is carried out in an electromagnetic field at a frequency of 2500-30,000 mHz and voltage of 0.1-0.025 kV/cm for 5-10 minutes.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